

REMARKS

Claims 44-91 are pending. By this Amendment, the specification and claims 44, 63 and 81 are amended, and the abstract has been replaced. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

In paragraph 3 of the Office Action, it is indicated that the abstract filed with the November 6 reply was not received by the Patent Office. Included herewith is a new abstract.

The disclosure and claims were objected to based on minor informalities. With respect to the use of European style language, the claims and specification have been amended to eliminate the use of computerised, immobilised, etc. Further, the informalities noted on page 8, line 25 in claim 81, line 1 have been obviated. These amendments are for the purpose of clarity only. Finally, Applicant traverses the objection made to claim 48, line 2 since the word "an" is proper. However, should the Examiner believe that "a" would be more proper, he is invited to telephone the undersigned to change the language. Withdrawal of the objections is respectfully requested.

Claims 87 and 88 were objected to because they allegedly do not further limit the claims from which they depend. Applicant respectfully traverses this rejection.

Claim 87 defines a can end having an opening tab as set forth in claim 83. Claim 88 sets forth a can having a can end with an opening tab as set forth in claim 83. There is nothing indefinite about these claims. See MPEP 2173.05(f). For example, claims which read "the product produced by the method of claim 1." or "A method of producing ethanol comprising contacting amylose with the culture of claim 1 under the following conditions . . ." are not indefinite under 35 U.S.C. §112, second

paragraph, merely because of reference to another claim. In addition, see *Ex parte Porter*, 25 USPQ2d 1144 (Bd. of Pat. App. and Inter. 1992) wherein reference to "the nozzle of claim 7" in a method claim was held to comply with 35 U.S.C. §112, second paragraph.

Withdrawal of the rejection is respectfully requested.

Claims 44, 56, 57, 61-63, 74-76 and 81-91 were rejected under 35 U.S.C. §102(e) over Miller et al. In addition, claims 45-55, 64-73 and 80 were rejected under 35 U.S.C. §§102/103(a) over Miller alone, or in view of various prior art references cited in the Office Action. Applicant respectfully traverses these rejections as the base reference from which all the rejections stem is not prior art to this application.

Miller was filed on July 16, 1998, which is after the April 28, 1998 filing date of Applicant's priority document (copy enclosed), which is in the English language. Applicant is entitled to claim priority from the Swedish priority document since the present application was filed on October 5, 1999, claiming §120 priority from PCT/SE99/00692, which was filed on April 28, 1999 and not withdrawn until October 5, 2000 - the present application was filed during the pendency of the PCT. Further, the PCT was filed within one year of the filing date of the Swedish application. In addition, see the Declaration which was filed in this application in which §120 priority is claimed based on the PCT. Moreover, it is not relevant that Application Serial No. 08/069,200 abandoned before this application was filed since this application properly claims priority from the PCT and Swedish applications. Should the Examiner have any questions regarding the status of Applicant's claim for priority, he is invited to contact the undersigned at the telephone number listed below.

Accordingly, withdrawal of the rejections based on Miller are respectfully requested.

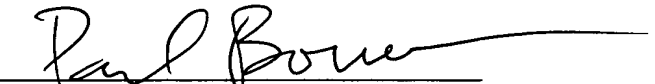
Applicant appreciates the indication that claims 58-60 and 77-79 define patentable subject matter. However, in view of the above amendments and remarks, Applicant respectfully submits that all of the claims are patentable and that the entire application is in condition for allowance.

Should Examiner Huynh believe that anything further is desirable to place the application in better condition for allowance, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 8, delete the whole paragraph starting in line 25 and replace it with the following new paragraph:

[In] It is also preferred that the laser engraving operation takes place during the time period when the tab forming unit 11 performs a stamping and punching operation, i.e., when the strip 1 is in an [immobilised] immobilized condition. Thus, the scanner head 150 should be capable of focusing the laser radiation to a small spot and control the position of this spot in two dimensions on the strip surface.

Page 9, delete the whole paragraph starting in line 28 and replace it with the following new paragraph:

Excellent results have been achieved in practice by a modified version of a diode laser pumped Nd:YAG laser (DynaMark T2) marketed by the German company IWKA. The laser emits pulses with a duration of 25 ns in a cycle time of approximately 0.1-1 μ s. The average power per pulse is 25 kW, with a peak pulse power of about 100 kW. This laser power is adequate for engraving [coloured] colored metal surfaces, but should be increased when engraving bare metal surfaces.

Page 10, delete the whole paragraph starting in line 13 and replace it with the following new paragraph:

Each deflection device 152, 153 controls the deflection of the laser beam in one respective direction (x, y). By the combined action of the two deflection devices 152, 153, the laser beam L can be controlled in two dimensions over the strip surface. The deflection devices 152, 153, as well as the laser 100, are operated by a control means (not shown) which in turn is controlled by the [computerised] computerized control unit 14 (Fig. 2). Preferably, the deflection devices 152, 153 are galvanometers of a type known per se, in which the rotation of a mirror 155, 156 is controlled by means of an electromagnetic field and feedback control.

Page 11, delete the whole paragraph starting in line 16 and replace it with the following new paragraph:

The provision of laser engravings on a limited surface also calls for careful positioning of the strip 1 during the engraving operation. Due to the indexing motion of the strip 1 into the tab forming unit 11, the strip 1 will swing and jump in all directions on its way from the supply 8 to the tab forming unit 11. To control the position of the strip 1, a guiding device 12 is arranged in the area of the engraving operation. This guiding device 12 should allow for careful positioning of the strip 1, but should not interfere with the intermittent progression of the strip 1 into the tab forming unit 11. Preferably, the strip 1 should not be clamped during the laser engraving operation, since this might disturb the indexing motion of the strip 1 or lead to stretching of the strip 1. Also, friction must be [minimised] minimized. Typically, the strip 1 should be positioned with a precision of about 15 μm in the lateral, or transverse, direction, at least when providing marks on the surface of the tabs 2. The vertical position of the strip 1 should also be carefully controlled within the focal region of the laser beam, typically about 0.2 mm.

Page 13, delete the whole paragraph starting in line 27, and replace it with the following new paragraph:

In order for the tab forming unit 11 to form each tab from the intended portion of the strip 1 (cf. the laser-engraved areas marked by ghost lines in Fig. 6), the engraving operation should be effected as close as possible to the tab forming operation. However, the laser unit 9 should preferably be physically unconnected to the tab forming unit 11 due to the excessive vibrations produced in the latter. Preferably, a sensor (not shown) is arranged in association with the tab forming unit 11 or the strip feeding means 13. The sensor is adapted to indicate when the strip 1 is in an [immobilised] immobilized condition, e.g., by sensing a dwell condition of the tab forming unit 11 or the strip feeding means 13. The output signal of the sensor is fed to the laser unit 9 to initiate the laser engraving operation on the surface of the [immobilised] immobilized strip 1.

Page 14, delete the whole paragraph starting in line 23 and replace it with the following new paragraph:

In the illustrated embodiment, the apparatus effects the laser engraving operation during the dwell time of the strip feeding means 13. This provides for excellent control of the strip position during engraving as well as a high production rate of laser-engraved tabs. Typically, the tab production unit 11 operates at a speed of 640 strokes/min or higher, with the strip 1 being [immobilised] immobilized during approximately 60 ms. In this time, the inventive apparatus is capable of providing three laterally spaced tab-forming strip portions with six laser-engraved letters each, the letters having a height of 2 mm (cf. Fig. 6).

Page 15, delete the whole paragraph starting in line 18, and replace it with the following new paragraph:

Finally, it should be [emphasised] emphasized that the invention by no means is restricted to the embodiments described in the foregoing, and modifications are feasible within the scope of the appended claims. In particular, it should be pointed out that the specific design of the can end is not crucial as long as the aimed-at laser engraved markings are provided on the tab to be attached thereto.

IN THE CLAIMS:

Please enter the amendments to claims 44, 63 and 81 as follows:

44. (Amended) A method of manufacturing articles to be included in cans, comprising:

intermittently feeding a metal strip having an upper surface and a lower surface into an article forming unit; and

providing at least one of the upper surface and the lower surface of the strip with laser engravings from a laser unit when the strip is in an [immobilised] immobilized condition and before the strip is fed into the article forming unit where the articles are formed, said laser engravings forming marks on at least one of the upper surface and the lower surface of the strip.

63. (Amended) An apparatus for manufacturing articles to be included in cans, comprising:

a supply of a metal strip having an upper surface and a lower surface;

an article forming unit;

a strip feeder between the supply and the article forming unit, the strip feeder intermittently moving the strip into the article forming unit such that the strip is in an [immobilised] immobilized condition between periods of intermittent movement;

a laser unit arranged between the supply of metal strip and the article forming unit, the laser unit providing laser engravings on at least one of the upper surface and the lower surface of the strip, the laser engravings forming marks on at least one of the upper surface and the lower surface of the strip to be formed into the articles by the article forming unit; and

a control unit in communication with the laser unit, the laser unit being controlled so that the laser engravings are provided on at least one of the upper surface and the lower surface of the strip when the strip is in the [immobilised] immobilized condition between the periods of intermittent movement.

81. (Amended) An apparatus as set forth in [one of] claim 63, wherein said articles are opening tabs to be attached to ends of the cans.

The Abstract has been replaced.